

**REMARKS**

At the time of the Final Office Action dated April 10, 2003, claims 1-10 and 12-24 were pending in this application. Of those claims, claims 1-10 have been rejected and claims 12-24 have been withdrawn from consideration pursuant to the provisions of 37 C.F.R. § 1.142(b). Applicants respectfully submit that by the present Amendment and Remarks, this application is placed in clear condition for immediate allowance. At the least, the number of issues have been reduced, thereby placing this application in better condition for Appeal.<sup>2</sup> Accordingly, entry of the present Amendment and Remarks and favorable consideration are respectfully solicited.

In the third enumerated paragraph of the Office Action, the Examiner objected to claim 10 under 37 C.F.R. § 1.75(c), alleging that claim 10 fails to further limit the subject matter of claim 1, upon which claim 10 directly depends. As claim 10 has been cancelled, the Examiner's objection is moot.

**Claim 1 is rejected under the first paragraph of 35 U.S.C. § 112**

In the fifth enumerated paragraph of the Office Action, the Examiner asserted that the "prescribed element" is critical or essential to the practice of the invention, and therefore, must be contained in the claim. More specifically, the Examiner appears to believe that the transistor recited in claim 6, which is recited as a prescribed element, is the critical or essential element. This rejection is respectfully traversed.

The Examiner is referred to M.P.E.P. 2164.08(c), entitled "Critical Feature Not Claimed," which states the following:

---

<sup>2</sup> See M.P.E.P. § 706.07(e) ("An amendment that will place the application ... in better form for appeal may be admitted.")

A feature which is taught as critical in a specification and is not recited in the claims should result in a rejection of such claim under the enablement provision section of 35 U.S.C. 112. See *In re Mayhew*, 527 F.2d 1229, 1233, 188 USPQ 356, 358 (CCPA 1976). In determining whether an unclaimed feature is critical, the entire disclosure must be considered. Features which are merely preferred are not to be considered critical. *In re Goffe*, 542 F.2d 564, 567, 191 USPQ 429, 431 (CCPA 1976).

As evidenced from this passage, the Examiner is burdened to establish that the alleged feature not recited in claim 1 must be "taught as critical in a specification." The Examiner, however, has failed to establish where Applicants' specification teaches that the prescribed element being a transistor is critical.

In responding to Applicants' arguments made in the Amendment filed March 10, 2003, the Examiner stated in the ninth enumerated paragraph the following:

In response to applicants' argument on page 5, it is known in the art that any kinds [sic] of elements could be performed [sic] on a semiconductor substrate, however the "prescribed element" *in this instant invention is a transistor and a gate electrode of said transistor* is critical or essential to the practice of the instant invention, but not included in the claim, therefore, it has been suggested, as in the previous office action, that the "prescribed element" should be stated to prevent the claim not enabling.

As evident from the Examiner's response reproduced above, the only basis for the Examiner to assert that the feature is critical is the Examiner's own factually unsupported belief. Thus, as the Examiner has failed to establish where the alleged critical feature is taught as critical in the specification, as required by *In re Mayhew*, Applicants submit that the imposed rejection of claim 1 under the first paragraph of 35 U.S.C. § 112 has been improperly established and, hence, Applicants respectfully solicit withdrawal thereof.

**Claims 1-9 and 11 are rejected under 35 U.S.C. § 102 for lack of novelty as evidenced by Flaker et al., U.S. Patent No. 6,410,369 (hereinafter Flaker)**

In the sixth enumerated paragraph of the Office Action, the Examiner asserted that Flaker discloses a semiconductor device corresponding to that claimed. This rejection is respectfully traversed.

In the Amendment filed March 10, 2003, Applicants argued the following

Furthermore, the Examiner identified a "body link 32" in Figs. 8 and 10B of Flaker as corresponding to the first conductivity type semiconductor region recited in claim 1. The body link 32 of Flaker is provided in a silicon layer of a P-type (first conductivity type), so that the body line 32 contains P-type impurities. However, according to Flaker, a surface of a portion of the silicon layer where the body link 32 is to be formed is covered with oxide films 52, 56 during a process of implanting arsenic ions, as shown in Fig. 13, and it is almost impossible to completely prevent arsenic ions from being introduced into the portion where the body link 32 is to be formed by only providing the oxide films 52, 56. As such, in the process shown in Fig. 13, arsenic ions would inevitably be introduced into the portion where the body link 32 is to be formed. Thus, the body link 32, as formed, would contain N-type (second conductivity type) impurities, as well as P-type impurities.

In contrast, the recited semiconductor region includes a first conductivity type impurity region formed of only first conductivity impurities. According to the present invention, a  $N^+$  block region 41 is provided in a  $N^+$  block resist 51 during implantation of N-type impurities to thereby obtain the first conductivity type impurity region, for example, as shown in Figs. 10 and 11. The provision of the  $N^+$  block region 41 completely prevents N-type impurities from being introduced into a portion of a well region 11 (corresponding to the recited semiconductor region in claim 1) located under the  $N^+$  block region 41. As a result, a P-type impurity region (corresponding to the first conductivity type impurity region in claim 1), which is not mixed with a N-type impurity, will be formed in the portion of the well region 11 located under the  $N^+$  block region 41. Flaker neither discloses or suggests a process for obtaining a region formed of only P-type impurities, as it is impossible to arrive at the semiconductor region recited in claim 1 from the teachings of Flaker.

In short, Applicants have argued that Flaker fails to identically disclose the claimed feature of "said semiconductor region at least partially has a first conductivity type impurity region not mixed with an impurity of a second conductivity type different from said first conductivity type but doped by only an impurity of said first conductivity type." The Examiner responded to this argument in the twelfth enumerated paragraph with the following:

In response to applicants' argument in the paragraph bridged pages 8 and 9 that the portion of the body link 32 would contain both type of impurities and the description of the instant invention of the next paragraph, applicants are directed to col. 6, lines 7-23 wherein the reference assures a precise control of the forming of element 62, therefore, no mixed impurities would exist in the body link 32.

For ease of analysis, the Examiner's cited passage of column 6, lines 7-23 of Flaker is reproduced below:

A shallow  $N^+(As)$  implant 58 is then made into the areas 60 not protected by the nitride pad or the CVD oxide (FIG. 13). The structure then goes through a high-pressure, low-temperature oxidation (HIPOX) cycle. The  $N^+$  regions 60 (formed in FIG. 13) oxidize without appreciable diffusion to form HIPOX regions 62. That is, oxidation proceeds rapidly through the  $N^+$  regions, then slows dramatically in the P-type silicon, without significant As dopant outdiffusion. Experiments have shown that a  $700^\circ C.$ , HIPOX oxidation can result in the  $N^+$  layer oxidizing greater than five (5) times faster than the underlying P-type silicon. This allows very precise control of the oxidation depth, since the oxidation rate will slow markedly

when the shallow N<sup>+</sup> region is consumed (FIG. 14). This step and the particular type of control is critical for assuring that body links will have good continuity yield.

Upon reviewing this excerpt from Flaker, there is no indication that Flaker provides any teaching whatsoever that the body link 31 does not include a portion having no impurities of the second conductivity type (N-type impurities in Flaker). The Examiner's argument that the "very precise control of the oxidation depth" somehow corresponds to no mixed impurities is unpersuasive. The Examiner has not provided any necessary link between precise control of oxidation depth, as indicated by Flaker, and the claimed limitation of a region "doped by only an impurity of said first conductivity type." Therefore, Flaker fails to identically disclose the claimed invention, as recited in claims 1-9, within the meaning of 35 U.S.C. § 102.

As to the claimed "dummy regions" in claims 7-9, the Examiner asserted that "there are regions on the wafer of the reference that are not active regions and could therefore be labeled as 'dummy regions'." The Examiner also referred to U.S. Patent No. 6,483,165 to support the Examiner taking official notice that "the dummies are defined as elements 'not to function as an element'." Notwithstanding that the Examiner failed to point to exactly where in U.S. Patent No. 6,483,165 the Examiner finds support for his taking of official notice, the Examiner has failed to establish where the Examiner's asserted "elements that do not function as an element" can be found in Flaker.

**Claims 1-11 are rejected under 35 U.S.C. § 103 for obviousness based upon Flaker in view of Ooishi et al., U.S. Patent No. 6,483,165 (hereinafter Ooishi)**

In the seventh enumerated paragraph of the Office Action, the Examiner asserted that one having ordinary skill in the art would have been motivated to modify Flaker in view of Ooishi to arrive at the claimed invention. This rejection is respectfully traversed.

Although the Examiner rejected claims 1-11 under 35 U.S.C. § 103 for obviousness, the Examiner only discusses claims 7-9 in the statement of the rejection. As the Examiner has failed to make any mention of claims 1-6 in the statement of the rejection under 35 U.S.C. § 103 for obviousness, Applicants respectfully request that the Examiner withdraw the rejection of claims 1-6 under 35 U.S.C. § 103 for failure to establish a prima facie basis of obviousness.

Furthermore, with regard to claims 7-9, although Applicants disagree that the claimed invention is obvious predicated upon the Flaker in view of Ooishi, to expedite prosecution of the Application, Applicants submit that the reference to Ooishi cannot be properly applied against the present Application under 35 U.S.C. § 103. As discussed in M.P.E.P. § 2146, a reference that qualifies as "prior art" only under 35 U.S.C. § 102(e) cannot be considered when determining whether an invention is obvious under 35 U.S.C. § 103, provided the prior art and the claimed invention were commonly owned at the time of the invention. See M.P.E.P. § 706.02(l).

**Application No. 09/988,593 (the present application) and U.S. Patent No. 6,483,165 (Ooishi) were, at the time the invention was made, commonly owned by Mitsubishi Denki Kabushiki Kaisha.**

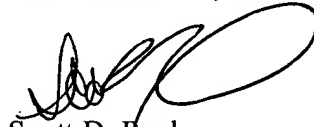
Thus, under 35 U.S.C. § 103(c), the reference to Ooishi cannot be considered by the Examiner when determining whether Applicants' invention is obvious under 35 U.S.C. § 103. Applicants, therefore, respectfully submit that the imposed rejection of claims 1-11 under 35 U.S.C. § 103 for obviousness predicated upon Flaker in view of Ooishi is not viable and, hence, solicit withdrawal thereof.

Applicants have made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. However, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. Accordingly, and in view of the foregoing remarks, Applicants hereby respectfully request reconsideration and prompt allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417, and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY



Scott D. Paul  
Registration No. 42,984

600 13<sup>th</sup> Street, N.W.  
Washington, DC 20005-3096  
(202) 756-8000 SDP:kap  
**Date: July 7, 2003**  
Facsimile: (202) 756-8087